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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/662,473

09/16/2003

Shigeo Honma

H-926-03

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MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER

LAI, MICHAEL C

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/662,473	Applicant(s) HONMA ET AL.	
	Examiner MICHAEL C. LAI	Art Unit 2457	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
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| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/16/2003, 1/30/2007, 10/15/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is responsive to communication filed on 9/16/2003.

Claims 13-14 have been examined.

Priority

2. Acknowledgment is made of applicant's claim for benefit of a CON of application no. 09/606,050, now PAT 6,950,871, filed on 06/29/2000.

Specification

3. The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

Claim Objections

4. Claim 13 is objected to because of the following informalities: "which has" in line 1 should be "comprising:" since line 9 recites the limitation of "further comprising."
5. Claim 14 is objected to because of the following informalities: "connecting" in line 7 should be removed.

Appropriate correction is required.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim 13 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of U.S. Patent No. 6,950,871.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-2 of U.S. Patent No. 6,950,871 contain every element of claim 13 of the instant application (see the following table). Claim 13 of the instant application therefore is not patentably distinct from U.S. Patent No. 6,950,871 and as such is unpatentable over obvious-type double patenting.

Instant Application 10/662,473	U.S. Patent No. 6,950,871
<p>13. (New) A computer system which has plural client computers, plural various servers, plural various storages which keep data,</p> <p>a local area network (LAN) which connects said computers and said servers, and</p> <p>a storage area network (SAN) which lies between said servers and said storages;</p> <p>wherein said SAN forms a switched circuit network which is arranged to connect any of said servers with any of said storages through fiber channel switches (FC switches), said computer system further comprising</p> <p>a terminal having operation and management software which performs storage management including management of logical volumes in said plural storages, data arrangement and error monitoring, management of setting up said FC switches, and a backup operation for data in said storages, and</p> <p>wherein when data in a primary volume in a first one of said storages is backed up to a backup device in a non-disruptive manner under control of said operation and management software, a secondary volume corresponding to said primary volume is created in a second one of said storages different from said first storage by an internal function, a copy is made from said primary volume to said secondary volume, and said copy is transferred to said backup device via said SAN without passing on said LAN.</p>	<p>1. A computer system, comprising:</p> <p>a plurality of client computers;</p> <p>a plurality of servers;</p> <p>a plurality of storages which have multiple disk drives and keep data in said plurality of disk drives;</p> <p>a local area network (LAN) which connects said computers with said servers; and</p> <p>a storage area network (SAN) which lies between said servers and said storages,</p> <p>wherein said SAN forms a switched circuit network having fiber channel switches and arranged to connect any of said servers and any of said storages through said fiber channel switches, and said computer system comprising:</p> <p>a terminal, which is connected to said LAN and equipped with operation and management software which performs storage management, including management of logical volumes in said storages, management of data arrangement including moving data in one of said logical volumes to another of said logical volumes, management of error monitoring for said storages, management of setting up said fiber channel switches, and management of a server-less backup operation for backing-up data directly from one of said storages to a backup storage of said storages via said SAN without relaying said data via any of said servers or said terminal;</p> <p>wherein the operation and management software of said terminal realizes acquisition of statistical information of resources of said logical volumes; and</p> <p>wherein the operation and management software of said terminal manages said</p>

	<p>logical volumes in said storages in accordance with said statistical information including usage of logical devices composing said logical volumes, said operation and management software predicting future usage of said logical devices given a proposed allocation of said logical devices based on said usage, and said operation and management software allocating said logical devices in response to a command based on said future usage prediction.</p> <p>2. The computer system as claimed in claim 1, wherein, when a backup copy of data in a primary volume in said one storage is made to said backup storage in a non-disruptive manner, a secondary volume corresponding to the primary volume is created by internal functions in said one storage, copies are made from said primary volume to said secondary volume, the made copies are transferred from said secondary volume to said backup storage via said SAN without passing said LAN, and thereby backup is achieved.</p>
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Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 6,148,414 to Brown et al. (hereinafter "Brown") in view of U.S. Patent

No. 6,640,278 to Nolan et al. (hereinafter "Nolan"), and further in view of U.S. Patent No. 6,460,113 to Schubert et al. (hereinafter "Schubert").

Regarding claim 13, Brown discloses a computer system (Fig. 1) which has

plural client computers (Fig. 1, "101" - "10N"),

plural various servers (Fig. 1, "201" - "20N"),

plural various storages which keep data (Fig. 1, "45"),

a local area network (LAN) which connects said computers and said servers (column 6, lines 14-18), and

a storage area network (SAN) which lies between said servers and said storages (Fig. 1, "50");

wherein said SAN forms a switched circuit network which is arranged to connect any of said servers with any of said storages through fiber channel switches (FC switches) (column 6, lines 45-46),

said computer system further comprising

a terminal (Fig. 1, "301" - "30N" and column 6, lines 20-23) having operation and management software which performs storage management (column 2, lines 33-42, the controllers which include one or more AMFs [array management functions, which are defined as the body that provides common control and management for one or more disk or tape arrays]), and

wherein when data in a primary volume in a first one of said storages is backed up to a backup device in a non-disruptive manner under control of said operation and management software, a secondary volume

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corresponding to said primary volume is created in a second one of said storages different from said first storage by an internal function (column 1 line 66 through column 2 line 6, sharing redundancy group management).

Brown shows the substantial features of the claimed invention, but Brown fails to explicitly disclose which type of management is performed by the array management functions including management of logical volumes in said plural storages, data arrangement and error monitoring, management of setting up said FC switches, and a backup operation for data in said storages.

Nonetheless these features are well known in the art of storage management and would have been an obvious modification to the system disclosed by Brown, as evidenced by Nolan. In an analogous art, Nolan discloses a method for management of storage resources in a storage network, including a system comprising a plurality of client servers and a plurality of storage devices connected via a SAN, with a storage management system with operation and management software performing storage management including management of logical volumes in said storages, management of data arrangement including moving data in one of said logical volumes to another of said logical volumes, management of error monitoring for said storages, management of setting up said fiber channel switches, and management of a backup operation for data in said storages (column 2, lines 19-41 and lines 49-52).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate Nolan's teaching into Brown's system for the purpose of managing logical volumes and backup operations by incorporating these well-known features, thereby providing scalability, high performance and reliability.

Brown and Nolan shows the claimed invention, but fails to explicitly disclose that a copy is made from said primary volume to said secondary volume, and said copy is transferred to said backup device via said SAN without passing on said LAN.

Nonetheless these features are well known in the art of storage management and would have been an obvious modification to the system disclosed by Brown and Nolan, as evidenced by Schubert. In an analogous art, Schubert discloses that a copy is made from the primary volume to the secondary volume, and the copy is transferred to the backup device via a SAN without passing a LAN (column 4, lines 54-61 and column 5, lines 35-41).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate Schubert's teaching into Brown's and Nolan's system for the purpose of reducing network traffic by incorporating these well-known features, thereby substantially reducing the time necessary to perform backup operations (column 2, lines 29-34).

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9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 6,148,414 to Brown et al. (hereinafter "Brown") in view of U.S. Patent No. 6,460,113 to Schubert et al. (hereinafter "Schubert"), and further in view of U.S. Patent No. 6,401,178 to Gagne et al. (hereinafter "Gagne").

Regarding claim 14, Brown discloses a computer system (Fig. 1) which has

plural client computers (Fig. 1, "101" - "10N"),

plural various servers (Fig. 1, "201" - "20N"),

plural various storages which keep data (Fig. 1, "45"),

a local area network (LAN) which connects said computers and said servers (column 6, lines 14-18), and

a storage area network (SAN) which lies between said servers and said storages (Fig. 1, "50");

wherein said SAN forms a switched circuit network which is arranged to connect any of said servers with any of said storages through fiber channel switches (FC switches) (column 6, lines 45-46), and

wherein when data in one of said storages is backed up to a backup device in a non-disruptive manner (column 1 line 66 through column 2 line 6, sharing redundancy group management).

Brown shows the substantial features of the claimed invention, but fails to explicitly disclose a function of backing up said data from said secondary volume to a backup device via said SAN.

Nonetheless these features are well known in the art of storage management and would have been an obvious modification to the system disclosed by Brown, as evidenced by Schubert. In an analogous art, Schubert discloses that a copy is made from the primary volume to the secondary volume, and the copy is transferred to the backup device via a SAN (column 4, lines 54-61 and column 5, lines 35-41).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate Schubert's teaching into Brown's system for the purpose of reducing network traffic by incorporating these well-known features, thereby substantially reducing the time necessary to perform backup operations (column 2, lines 29-34).

Brown and Schubert shows the claimed invention, but fails to explicitly disclose an instruction of a volume split from one of said servers via said SAN, a function of assuming that data in a primary volume were kept in a secondary volume at the time of said instruction.

Nonetheless these features are well known in the art of storage management and would have been an obvious modification to the system disclosed by Brown and Schubert, as evidenced by Gagne. In an analogous art, Gagne discloses a

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data storage facility comprises first, second and third data stores. Each of the second and third data stores can be selectively connected as mirrors **(synchronously replicated)** for the first data store at different times. Each of the second and third data stores can also be split via a **SPLIT command** (column 1, lines 43-57, column 2, lines 54-61, and column 8 lines 23 through column 10 line 7) and re-established via a RE-ESTABLISH command (column 10 line 9 through column 11 line 8).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate Gagne's teaching into Brown's and Schubert's system for the purpose of updating the primary volume and secondary volume in an efficient manner by incorporating these well-known features, thereby providing a data storage facility that allows multiple copying of data from a primary device and the updating of those copies efficiently and transparently to any interaction between a host device and the data in the primary storage device (column 2, lines 49-53).

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially

teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Lai whose telephone number is (571) 270-3236. The examiner can normally be reached on M-F 8:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

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Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael C. Lai
11FEB2009

/ARIO ETIENNE/
Supervisory Patent Examiner, Art Unit 2457